

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-283336

(43)Date of publication of application : 29.10.1993

(51)Int.Cl. H01L 21/20  
H01L 21/203  
H01L 21/363

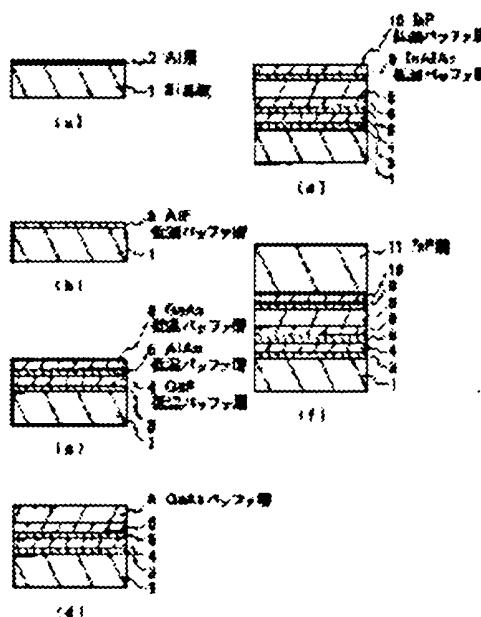
(21)Application number : 04-074825 (71)Applicant : NEC CORP  
(22)Date of filing : 31.03.1992 (72)Inventor : MORI KAZUO

## (54) FORMATION OF COMPOUND SEMICONDUCTOR LAYER

### (57)Abstract:

PURPOSE: To form a group III-V semiconductor epitaxial layer of high quality and good surface flatness on a single crystal of non-polar or different lattice constant.

CONSTITUTION: An Al layer 2 of one atomic layer is formed on an Si substrate 1 at a low temperature of 400° C or below and then P is supplied successively. The processes are repeated to form an AlP low temperature buffer layer 3. A GaP low temperature buffer layer 4, an AlAs low temperature buffer layer 5 and a GaAs low temperature buffer layer 6 are made to grow one by one thereon by a similar alternate supply method. A temperature is made to rise while supplying As and a Gaps buffer layer 8 is formed by an ordinary simultaneous supply method. Then, a temperature is lowered and an InAlAs low temperature buffer layer 9 and an InP low temperature buffer layer 10 are made to grow one by one by the alternate supply method. Thereafter, a temperature is made to rise while supplying P and an InP layer 11 is formed by the simultaneous supply method. Since two dimensional growth from an initial stage can be thereby acquired even on a single crystal of non-polar or different lattice constant, interface defective density can be reduced and dislocation due to thermal strain can be restrained from rising again.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision

of rejection]